

AD-A087 453

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2  
197058 MLRS, MISSILE NUMBERS 199, 169, 168, ROUND NUMBERS B-77,--ETC(U)  
JAN 80

UNCLASSIFIED

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17. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19705B MLRS, Missile Numbers 199, 169, 168, Round Numbers B-77, B-78, B-79 are presented in tabular form.		

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JOB

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## INTRODUCTION

19705B MLRS, Missile Numbers 199, 169 and 168, Round Numbers B-77, B-78 and B-79 were launched from Snake, White Sands Missile Range (WSMR), New Mexico, at 1013, 1013:04 and 1013:08 MST on 29 January 1980. The scheduled launch times were 1000, 1000:04 and 1000:08 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the Snake Met Site at T-0 minutes.

(2) Monitor of wind speed and direction from one anemometer was provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pilot observation at:

### SITE AND ALTITUDE

Snake	1150 meters
Denver	2 km

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 53,000 feet in 500-foot increments.

### SITE AND TIME

Jallen 0945 MST

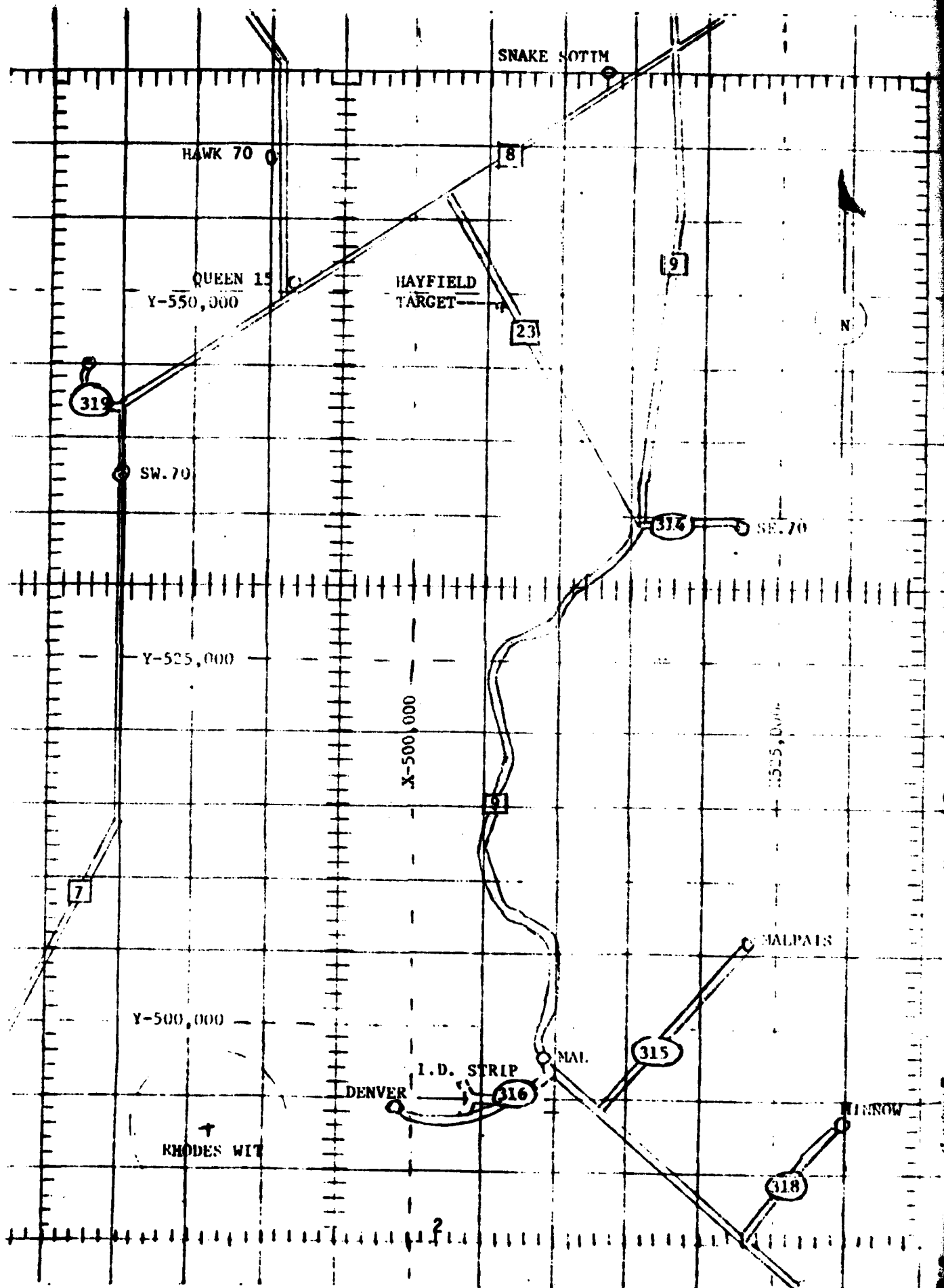




TABLE 1. Surface Observations taken at 1013 MST,  
29 January 1980, at Snake, 19705B MLRS,  
Missile Numbers 199, 169 and 168, Round  
Numbers B-77, B-78 and B-79.

ELEVATION	Unknown	FT/MSL
PRESSURE	861.5	MBS
TEMPERATURE	13.0	°C
RELATIVE HUMIDITY	57.0	%
DEW POINT	4.6	°C
DENSITY	1043	GM/M <sup>3</sup>
WIND SPEED	08	KTS
WIND DIRECTION	200	DEGREES
CLOUD COVER	2	Ac
CLOUD COVER	4	C1

## PILOT BALLOON MEASURED WIND DATA

TABLE 2

RELEASED FROM Snake

DATE 29 January 1980

TIME 1012 MST

## TRACKER

COORDINATES (WSTM)

$\chi =$  Unknown

**y = Unknown**

H= Unknown

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH

HEIGHTS ARE METERS AGL XX OR FEET AGL .

[illegible][illegible][illegible]

## PILOT BALLOON MEASURED WIND DATA

TABLE 3

RELEASED FROM **Denver**

DATE 29 January 1980

114 1013 MST

## TRACKER

COORDINATES (WSTM) X - 499,064.03

**493,904.12**

4123.10

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH

HEIGHTS ARE METERS AGL XX OR FEET AGL .

[illegible][illegible][illegible]

GEODETTIC COORDINATES  
 33.16712 LAT DEG  
 106.49511 LONG DEG

SIGNIFICANT LEVEL DATA  
 0290030027  
 JALLEN  
 TABLE 4

STATION ALTITUDE 4051.00 FEET MSL  
 29 JAN. 80 0945 HRS MST  
 ASCENSION NO. 21

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
875.0	11.0	3.3	59.0
864.8	8.5	.7	58.0
850.0	9.1	1.0	57.0
736.7	-1.1	-4.2	74.0
727.7	2.1	-2.2	73.0
700.0	-1.1	-4.5	72.0
658.6	-3.6	-6.1	64.0
641.4	-3.6	-9.6	63.0
590.2	-8.6	-14.5	63.0
564.8	-10.0	-19.0	45.0
530.3	-13.5	-25.0	37.0
500.0	-17.6	-21.1	74.0
486.2	-18.6	-23.5	65.0
449.2	-23.1	-24.6	66.0
411.7	-28.3	-26.6	97.0
406.8	-28.6	-29.0	96.0
400.0	-29.7	-33.1	72.0
393.2	-30.3	-30.5	54.0
358.2	-36.5	-37.5	90.0
347.2	-37.6	-41.1	69.0
334.8	-40.4	-44.8	62.0
314.8	-43.1	-49.3	50.0
300.0	-45.4		
250.0	-55.2		
238.4	-56.8		
236.9	-55.4		
223.4	-56.7		
213.6	-55.6		
207.5	-52.9		
200.0	-52.8		
189.2	-51.3		
165.0	-56.6		
150.0	-58.5		
132.9	-62.3		
111.9	-61.4		
100.2	-66.2		

STATION ALTITUDE 4051.00 FEET MSL  
29 JAN. 80  
ASCESSION NO. 21  
0945 HRS MSF

UPPER AIR DATA  
0290030027  
JALLEN  
TABLE 5

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.0	875.0	11.0	59.0	1069.1	657.8	180.0	9.9	1.000275
4500.0	860.7	8.7	57.7	1060.9	654.9	180.8	11.5	1.000267
5000.0	845.0	8.7	57.7	1041.3	655.0	196.0	13.4	1.000263
5500.0	829.3	7.5	58.9	1026.4	653.6	201.3	15.6	1.000259
6000.0	814.0	6.3	62.1	1011.9	652.2	207.8	17.3	1.000254
6500.0	798.9	5.1	64.4	997.5	650.7	210.3	18.6	1.000250
7000.0	784.1	3.9	65.6	983.4	649.3	223.0	20.5	1.000246
7500.0	769.6	2.7	68.8	969.5	647.9	228.1	22.7	1.000241
8000.0	755.4	1.5	71.0	955.8	646.4	232.5	25.6	1.000237
8500.0	741.4	.3	73.2	942.3	645.0	235.9	28.8	1.000233
9000.0	727.6	2.1	73.0	918.4	647.2	233.5	32.0	1.000231
9500.0	714.0	1.0	72.5	904.9	645.9	240.2	35.0	1.000226
10000.0	700.6	-1.1	72.0	891.6	644.6	241.5	37.6	1.000221
10500.0	687.4	-1.2	75.6	878.5	643.2	242.1	38.1	1.000217
11000.0	674.3	-2.4	79.4	865.6	641.8	243.1	38.8	1.000214
11500.0	661.6	-3.5	83.3	852.9	640.4	240.2	40.5	1.000210
12000.0	649.0	-3.7	72.3	837.4	640.1	248.3	42.8	1.000204
12500.0	636.0	-4.1	63.0	822.7	639.6	249.3	45.8	1.000198
13000.0	624.3	-5.2	63.0	810.5	638.2	249.3	46.6	1.000194
13500.0	612.3	-6.4	63.0	796.5	636.8	249.3	46.5	1.000191
14000.0	600.3	-7.6	63.0	780.6	635.3	250.7	46.1	1.000187
14500.0	589.0	-8.7	62.2	774.8	634.0	252.1	45.3	1.000183
15000.0	577.3	-9.3	54.1	761.7	633.2	253.5	43.5	1.000179
15500.0	566.3	-9.9	46.1	748.7	632.3	253.6	41.9	1.000174
16000.0	555.2	-11.0	42.8	737.0	631.1	252.1	40.5	1.000170
16500.0	544.2	-12.1	40.3	725.7	629.7	251.9	40.3	1.000167
17000.0	533.5	-13.2	37.8	714.5	628.3	252.3	40.6	1.000164
17500.0	523.0	-14.5	45.8	703.8	626.8	250.4	41.0	1.000162
18000.0	512.5	-15.9	58.4	693.5	625.1	260.0	41.5	1.000160
18500.0	502.3	-17.3	71.1	683.3	623.4	261.9	42.0	1.000159
19000.0	492.2	-18.2	69.0	671.9	622.3	263.5	42.7	1.000156
19500.0	482.3	-19.1	67.2	660.7	621.2	264.7	43.7	1.000152
20000.0	472.3	-20.2	72.6	650.3	619.8	265.5	44.7	1.000150
20500.0	462.8	-21.4	78.1	640.0	618.3	265.4	45.9	1.000148
21000.0	453.4	-22.6	83.5	629.9	616.9	263.3	47.0	1.000145
21500.0	444.1	-23.8	87.4	620.0	615.4	264.3	47.3	1.000143
22000.0	434.9	-25.0	90.1	610.2	613.8	263.4	47.6	1.000140
22500.0	425.9	-26.3	92.7	600.6	612.3	262.6	48.2	1.000138
23000.0	417.0	-27.5	95.4	591.2	610.7	261.6	48.8	1.000135
23500.0	408.3	-28.9	96.3	581.2	609.5	260.4	49.0	1.000133

STATION ALTITUDE 4051.00 FEET MSL  
24 JAN 60  
ASCENDING NO. 27

UPPER AIR DATA  
0290030027  
JALLEN  
TABLE 5 (CONT)

GEODETIC COORDINATES  
33-16712 LAT DEG  
106-49511 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	399.8	-29.7	71.4	571.9	607.9	259.0	49.1	1.000130
24500.0	391.5	-30.6	55.9	561.9	600.6	257.9	49.3	1.000127
25000.0	382.9	-32.1	64.2	553.2	605.0	257.0	49.5	1.000125
25500.0	374.7	-33.5	72.6	544.6	603.2	257.0	49.3	1.000123
26000.0	366.7	-34.9	80.9	536.1	601.4	257.2	48.9	1.000121
26500.0	358.9	-36.4	89.3	527.9	599.5	256.1	48.6	1.000119
27000.0	351.1	-37.2	76.5	519.2	598.5	255.3	48.5	1.000117
27500.0	343.4	-38.4	66.9	509.6	596.9	250.5	50.0	1.000115
28000.0	335.9	-40.1	62.6	502.1	594.7	260.7	51.8	1.000113
28500.0	328.5	-41.2	58.3	493.3	593.3	259.3	54.0	1.000111
29000.0	321.2	-42.2	53.9	484.5	592.0	257.1	56.3	1.000109
29500.0	314.1	-43.2	47.5**	475.8	590.8	254.6	58.7	1.000106
30000.0	307.0	-44.3	24.0**	467.3	589.4	253.4	59.1	1.000104
30500.0	300.1	-45.4	.5**	459.0	588.0	252.4	58.9	1.000102
31000.0	293.2	-46.6		451.0	586.3	251.9	57.6	1.000100
31500.0	286.5	-47.9		443.0	584.7	252.2	57.0	1.000099
32000.0	279.9	-49.1		435.3	583.1	252.9	56.7	1.000097
32500.0	273.5	-50.4		427.6	581.5	253.7	57.0	1.000095
33000.0	267.2	-51.6		420.2	579.8	253.9	56.8	1.000094
33500.0	261.0	-52.9		412.8	578.2	253.6	56.4	1.000092
34000.0	255.0	-54.1		405.6	576.6	252.6	56.6	1.000090
34500.0	249.2	-55.3		398.4	575.0	251.1	57.5	1.000089
35000.0	243.5	-56.1		391.5	573.9	249.4	59.7	1.000087
35500.0	237.5	-56.8		384.1	574.1	247.5	63.4	1.000085
36000.0	231.9	-55.9		376.9	574.3	246.0	67.9	1.000083
36500.0	226.5	-56.4		369.4	573.6	244.8	74.1	1.000081
37000.0	221.1	-56.4		362.0	573.5	244.1	80.8	1.000079
37500.0	215.9	-55.9		354.5	574.3	244.3	88.8	1.000077
38000.0	210.8	-54.9		346.1	574.3	244.8	95.7	1.000075
38500.0	205.9	-52.9		335.7	576.2	246.0	100.9	1.000073
39000.0	201.1	-52.8		325.0	576.2	247.1	105.1	1.000071
39500.0	196.5	-52.3		313.0	576.3	248.2	108.0	1.000069
40000.0	191.9	-51.7		300.9	576.8	248.9	112.5	1.000067
40500.0	187.5	-51.7		301.9	579.8	249.2	118.7	1.000066
41000.0	183.1	-52.6		294.8	578.6	249.4	125.6	1.000064
41500.0	178.6	-53.5		289.1	578.6	249.5	133.7	1.000063
42000.0	174.6	-54.4		283.6	577.4	249.6	139.3	1.000062
42500.0	170.3	-55.3		278.1	576.2	249.6	137.9	1.000061
43000.0	166.0	-56.2		272.5	575.0	250.0	136.4	1.000060
43500.0	162.0	-56.9		267.0	572.9	250.1	133.3	1.000059

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.00 FEET MSL  
24 JAN. 60 0945 HRS MS  
ASCENSION NO. 2/

UPPER AIR DATA  
0290030027  
JALLEN  
TABLE 5 (cont)

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
44000.0	158.8	-57.4		256.3	572.3	250.3	130.1	1.000057
44500.0	155.0	-57.8		250.8	571.6	250.6	128.7	1.000056
45000.0	151.3	-58.3		245.4	571.0	250.9	127.9	1.000055
45500.0	147.7	-59.0		240.3	570.1	251.2	127.2	1.000054
46000.0	144.2	-59.7		235.3	569.1	251.6	120.6	1.000052
46500.0	140.7	-60.5		230.5	568.1	252.0	112.5	1.000051
47000.0	137.3	-61.3		225.8	567.1	253.5	104.4	1.000050
47500.0	134.0	-62.0		221.1	566.0	254.7	95.5	1.000049
48000.0	130.8	-62.2		216.0	565.8	256.2	86.5	1.000048
48500.0	127.6	-62.1		210.6	566.0	256.1	91.8	1.000047
49000.0	124.5	-62.0		205.4	566.2	256.0	97.6	1.000046
49500.0	121.5	-61.8		200.3	566.3	256.1	104.7	1.000045
50000.0	118.6	-61.7		195.3	566.5	256.3	111.4	1.000043
50500.0	115.7	-61.6		190.5	566.7	257.3	104.2	1.000042
51000.0	112.9	-61.4		185.8	566.8	258.6	97.0	1.000041
51500.0	110.1	-62.1		181.8	566.0	259.2	86.7	1.000040
52000.0	107.3	-63.2		178.3	564.5	260.0	76.4	1.000040
52500.0	104.8	-64.2		174.8	563.1			1.000039
53000.0	102.3	-65.3		171.4	561.6			1.000038

STATION ALTITUDE 4051.00 FEET MSL  
 29 JAN. 60 0945 HRS MST  
 ASCENSION NO. 2/

MANDATORY LEVELS  
 0290030027  
 JALLEN  
 TABLE 6

GEODETIC COORDINATES  
 53.16712 LAT DEG  
 106.49511 LONG DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4837.	9.1	1.0	57.	193.9	12.8
800.0	6475.	5.2	-1.0	64.	216.0	18.5
750.0	8193.	1.1	-3.4	72.	233.9	26.9
700.0	10014.	-1.1	-4.5	72.	241.5	37.6
650.0	11047.	-3.7	-7.7	74.	240.2	42.6
600.0	14011.	-7.6	-13.4	63.	250.7	46.1
550.0	16218.	-11.5	-21.9	42.	251.8	40.2
500.0	18520.	-17.6	-21.1	74.	262.3	42.1
450.0	21154.	-23.0	-24.7	86.	265.0	47.1
400.0	23943.	-29.7	-33.1	72.	259.0	49.1
350.0	27023.	-37.3	-40.2	74.	259.4	48.7
300.0	30453.	-45.4			252.4	58.9
250.0	34357.	-55.2			251.4	57.3
200.0	39029.	-52.8			247.3	105.7
175.0	41850.	-54.3			249.0	139.5
150.0	45066.	-54.5			251.0	127.7
125.0	48793.	-62.0			256.1	96.4

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



